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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/530,480  
Filing Date: October 06, 2005  
Appellant(s): SUZUKI ET AL.

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Harris A. Pitlick

For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 26 February 2008 appealing from the Office action mailed 4 September 2007.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

6,841,261	Matsui et al.	1-2005
6,074,715	Lind et al.	6-2000
4,386,125	Shiraki et al.	5-1983
6,184,289	Teranishi et al.	2-2001

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

***Claim Rejections - 35 USC § 103***

Claims 1-20, 22-23 and 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsui et al. (US 6,841,261) in view of Lind et al. (US 6,074,715) with evidence of Shiraki et al. (US 4,386,125).

Regarding claims 1, 6-8, 13 and 14, Matsui ('261) teaches a heat shrinkable film comprising a resin composition (*See col. 1, ll. 6-23.*) comprising the following components (A) and (B) obtained by orientation at least in monoaxial direction (*See col. 2, ll. 56-60 and col. 5, ll. 22-44, oriented film with components (A) and (B).*),

(A) 50 to 95 mass % of a block copolymer comprising an aromatic vinyl compound and a conjugated diene in a proportion of the aromatic vinyl compound of from 50 to 90 mass % (*See col. 8, l. 64 to col. 9, l. 45 wherein the block copolymer comprises an aromatic vinyl compound and a conjugated diene and wherein the conjugated diene with a weight percentage of 5 to 40% provides for said aromatic compound concentration.*), and

having a micro phase separation structure comprising a soft phase and a hard phase (*See col. 8, l. 64 to col. 10, l. 51 wherein the structure clearly has a microphase separation structure with soft/hard phase regions wherein the styrene regions correspond to the hard phase and the non-styrene regions correspond to the soft phase.*), and

(B) 5 to 50 mass % of a styrene type polymer, which a syndiotactic structure is a member thereof (*See col. 14, l. 32 to col. 15, l. 16 and col. 9, ll. 28-63 wherein (B) includes styrene type polymers as in (A), such as styrene, o-methylstyrene, p-methylstyrene, high-impact styrene or*

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*other styrene-type components, which can exhibit a syndiotactic structure, having the above concentration.),* however, fails to expressly disclose wherein the film has a heat shrinkage ratio at 80 °C for 10 seconds of at least 20% and wherein the styrene type polymer has a syndiotactic structure.

However, Matsui ('261) teaches wherein the heat shrinkage factor can be in excess of 20% at 80 °C for 30 seconds (*See col. 36, Table 1.*). Furthermore, see col. 7, l. 40 to col. 8, l. 1 of Shiraki et al. (US 4,386,125), as evidence, wherein the heat shrinkage factor is calculated by the cited equation:

$$\text{Heat shrinkage factor (\%)} = \frac{(1 - I')}{I} * 100$$

Furthermore, it is noted that for an initial length of 100 and a final length of 80, both the heat shrinkage ratio, per Applicant's equation on p. 59, lines 4-9, and the heat shrinkage factor, per the above equation are 20%. Thus, the Examiner interprets "heat shrinkage ratio" and the "heat shrinkage factor" to be equivalent. Furthermore, it is noted that Shiraki et al. (US 4,386,125) states that it is desirable for the heat shrinkage factor for heat shrinkable films to be at least 15% at 80 °C for the purpose of providing long-term thermal and mechanical resilient films (*See col. 7, l. 40 to col. 8, l. 1.*).

Therefore, Matsui's ('261) film obviously teaches a heat shrinkage ratio at 80 °C for 10 seconds of at least 20% in order to satisfy the mechanical performance of the applied film.

Furthermore, Lind ('715) teaches wherein the styrene-type polymer in the multilayer heat shrinkable film is syndiotactic polystyrene (*See col. 5, l. 58 to col. 6, l. 25.*) for the purpose of providing a styrene-type structure having a strong structure and narrow molecular weight

distribution which provides for narrow crystalline and melting point ranges (*See col. 3, l. 44 to col. 4, l. 22 and col. 5, l. 58 to col. 6, l. 25.*).

Therefore, it would have been obvious to one having ordinary skill in the art to substitute a syndiotactic polystyrene for a styrene polymer of Lind ('715) in order to provide a strong heat shrinkable multilayered structure.

The phrase **“(C) 0 to 45 mass % of a styrene type polymer different from the components (A) and (B)”** in claim 1, lines 10-11 is interpreted as not limiting since “(C)” can be 0%.

The phrases “wherein component (C) is present and comprises a styrene type polymer having a random copolymer block portion of an aromatic vinyl compound and a conjugated diene in its structure” in claim 6, lines 2-4; “wherein component (C) is present and comprises a rubber-modified polystyrene containing dispersed rubber particles having a volume average particle size of at most 2  $\mu\text{m}$ ” in claim 7, lines 2-4; and “wherein component (C) is present and comprises a styrene type polymer having a random copolymer structure of styrene and a meth(acrylate) in its structure” in claim 8, lines 2-3 are interpreted as not limiting since “(C)” can be 0% per claim #1 and Applicant has not definitely defined and non-0% value for (C).

The phrase “wherein no holes of 1 mm or larger are confirmed after the film is left at rest on a hot plate of 120 °C for 120 seconds so that the film and the hot plate are in contact with each other” in claim 13, lines 2-3 are process limitations in a product claim and hence not given any patentable weight since patentability of a product does not depend on its method of production (*see MPEP § 2173.05(p)*). Furthermore, the above film would have such properties since the composition is the same.

Regarding claim 2, Matsui ('261) teaches a film wherein the block copolymer as the component (A) has a random copolymer block portion of the aromatic vinyl compound and the conjugated diene in its structure (*See col. 9, l. 28 to col. 10, l. 51 wherein a randomizing agent provides for said structure.*).

Regarding claim 3, Matsui ('261) teaches a film wherein the component (A) has the following characteristics:

(1) the loss tangent ( $\tan \delta$ ) has one or more maximum values within a temperature range of at least 65 °C and less than 100 °C in the dynamic visco elasticity spectrum (*See col. 3, ll. 19-31.*),

(2) the highest value of the maximum values corresponding to (1) is within a range of at least 1.5 and less than 4.0 (*See col. 3, ll. 32-37.*),

(3) the loss tangent at a temperature lower by 10 °C than the temperature for the highest maximum value among the maximum values corresponding to (1), is at most 40% of the highest maximum value (*See col. 36, Table 1, wherein said values are provided for.*),

(4) the loss tangent at a temperature lower by 30 °C than the temperature for the highest maximum value among the maximum values corresponding to (1), is at most 10% of the highest maximum value (*See col. 36, Table 1, wherein said values are provided for.*), and

(5) the loss tangent at 30 °C is within a range of at least 0.01 and less than 0.4 (*See col. 36, Table 1, wherein said values are provided for.*).

Regarding claim 4, Matsui ('261) teaches a film wherein the resin composition constituting the heat shrinkable film has the following characteristics:

(1) the loss tangent ( $\tan \delta$ ) has one or more maximum values within a temperature range of at least 65 °C and less than 100 °C in the dynamic viscoelasticity spectrum (*See col. 3, ll. 19-31.*),

(2) the highest value of the maximum values corresponding to (1) is within a range of at least 1.5 and less than 4.0 (*See col. 3, ll. 32-37.*),

(3) the loss tangent at a temperature lower by 10 °C than the temperature for the highest maximum value among the maximum values corresponding to (1), is at most 40% of the highest maximum value (*See col. 36, Table 1, wherein said values are provided for.*),

(4) the loss tangent at a temperature lower by 30 °C than the temperature for the highest maximum value among the maximum values corresponding to (1), is at most 10% of the highest maximum value (*See col. 36, Table 1, wherein said values are provided for.*), and

(5) the loss tangent at 30 °C is within a range of at least 0.01 and less than 0.4 (*See col. 36, Table 1, wherein said values are provided for.*).

Regarding claim 5, Matsui ('261) and Lind ('715) teach the film discussed above, however, fail to expressly disclose a film having a spontaneous shrinkage ratio at 40 °C for 7 days of at most 5%.

However, Matsui ('261) teaches a spontaneous shrinkage factor, which is the same as spontaneous shrinkage ratio, is less than 2% for 30 days, thus, it would have been obvious to a person having ordinary skill in the art at the time of Applicant's invention that said shrinkage factor would be less than 5% for 7 days in order to provide a film that has a desirable appearance (*See col. 1, ll. 6-23 and col. 2, ll. 43-50*).



Regarding claim 9, Matsui ('261) and Lind ('715) teach the styrene type polymer having a syndiotactic structure as the component (B) discussed above, however, fail to expressly disclose a crystalline melting point within a range of from 160 °C to 260 °C, and a crystalline melting energy of at least 1 J/g.

However, it would have been obvious, through routine optimization, to a person having ordinary skill in the art at the time of Applicant's invention that Matsui's ('261) and Lind's ('715) structure with the same components would also be configured to have the same melting points and melting energy in order to provide a film that has a desirable appearance (*See col. 1, ll. 6-23 and col. 2, ll. 43-50*).

Regarding claim 10, Matsui ('261) and Lind ('715) teach the film discussed above, however, fail to expressly disclose a crystallinity of from 3 to 80% and a cold crystallization temperature of from 120 to 170 °C derived from the component (B).

However, it would have been obvious, through routine optimization, to a person having ordinary skill in the art at the time of Applicant's invention that Matsui's ('261) and/or Lind's ('715) structure with the same components would also be configured to have the same crystallinity and cold crystallization temperature in order to provide a film that has a desirable appearance (*See col. 1, ll. 6-23 and col. 2, ll. 43-50 of Matsui ('261)*).

Regarding claim 11, Matsui ('261) and Lind ('715) teach the film discussed above, however, fails to expressly disclose a film having an internal haze of at most 30%.

However, it would have been obvious, through routine optimization, to a person having ordinary skill in the art at the time of Applicant's invention that Matsui's ('261) structure with

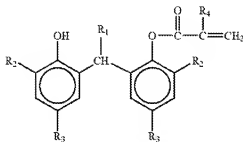
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the same components would also be configured to have the same internal haze in order to provide a film that has a desirable appearance (*See col. 1, ll. 6-23 and col. 2, ll. 43-50.*).

Regarding claim 12, Matsui ('261) and Lind ('715) teach the film discussed above, however, fails to expressly disclose wherein the ratio of the relaxation stresses in the orientation direction of the film and in a direction at right angles therewith, is from 1.2 to 10.

However, it would have been obvious to one having ordinary skill in the art at the time of Applicant's invention, to provide for the above ratio through routine optimization, in order to provide a film that does not wrinkle when applied to the substrate and has a desirable appearance (*See col. 1, ll. 6-23 and col. 2, ll. 43-50.*).

Regarding claim 15, Matsui ('261) teaches the film discussed above, however, fails to expressly disclose wherein an acrylate type compound (D) represented by the following formula in an amount of from 0.1 to 3 parts by mass per 100 parts by mass of the total amount of the components (A), (B) and (C):



wherein R<sub>1</sub> represents hydrogen or a C<sub>1-3</sub> alkyl, each of R<sub>2</sub> and R<sub>3</sub> which are independent of each other, represents a C<sub>1-9</sub> alkyl, and R<sub>4</sub> represents hydrogen or methyl.

However, Matsui ('261) teaches a (meth)acrylate in the block copolymer composition with the above weight ratio (*See col. 5, ll. 35-44 and col. 14, ll. 45-55*) for the purpose of

improving processability and low temperature orientation properties while providing for improved mechanical performance, thermal stability and visual aesthetics (*See col. 1, ll. 6-23 and col. 14, ll. 63-65.*).

Therefore, it would have been obvious to use the above similar acrylate as taught by Matsui ('261) in order to provide a composite with improved processability, visual aesthetics, mechanical performance and low temperature orientation properties.

Regarding claim 16, Matsui ('261) teaches a film that contains a phosphorus type stabilizer (*See col. 16, ll. 23-36.*), however, fails to expressly disclose an amount of from 0.1 to 1 part by mass per 100 parts by mass of the total amount of the components (A), (B) and (C).

However, it would have been obvious, through routine optimization, to one having ordinary skill in the art to add from 0.1 to 1 part by mass stabilizer containing phosphorus per 100 parts by mass of the total amount of the components (A), (B) and (C) for the purpose of preserving the physical properties of the film (*See col. 16, ll. 17-26.*).

Regarding claim 17, Matsui ('261) teaches wherein the film contains a phenol type stabilizer (except the component (D)) (*col. 16, l. 30*), however, fails to expressly disclose an amount of from 0.1 to 1 part by mass per 100 parts by mass of the total amount of the components (A), (B) and (C).

However, it would have been obvious, through routine optimization, to one having ordinary skill in the art to add from 0.1 to 1 part by mass stabilizer containing phenol per 100 parts by mass of the total amount of the components (A), (B) and (C) for the purpose of preserving the physical properties of the film (*col. 16, ll. 17-26*).

Regarding claim 18, Matsui ('261) teaches wherein the film is an expanded product (*See col. 2, ll. 56-60 wherein the orientation provides an expanded product.*).

Regarding claim 19, Matsui ('261) teaches a film having a multilayer structure, which has at least one layer of the heat shrinkable film (*See col. 2, l. 43-50.*).

Regarding claim 20, Matsui ('261) teaches the film discussed above, however, fails to expressly disclose wherein at least one of the outermost layers is made of a resin composition containing at least one copolymer selected from a styrene/butadiene block copolymer, a styrene/isoprene block copolymer and a styrene/meth(acrylate) type copolymer.

However, Matsui ('261) teaches wherein the film is a heat shrinkable multilayer film made of the above composition (*See col. 2, ll. 43-50 and col. 9, ll. 28-41.*), therefore it would have been obvious that the layer be in the outermost position in order to provide a film with satisfactory strength and shrinkability properties (*See col. 2, ll. 38-42.*) as taught by Matsui ('261).

Regarding claim 22, Matsui ('261) teaches wherein the film has a multilayer structure consists of three layers, the inner layer is the heat shrinkable film (*See col. 1, ll. 6-27 and col. 2, ll. 43-50.*), however, fails to expressly disclose wherein the proportion of the thickness of the three layers is 1 to 30:98 to 40:1 to 30 (the total is 100).

However, it would have been obvious, through routine optimization and design choice to select the above proportions in order to provide a structure that meets the desired strength and performance.

Regarding claim 23, Matsui ('261) teaches wherein the multilayer structure consists of two layers, one layer is the heat shrinkable film (*See col. 1, ll. 6-27 and col. 2, ll. 43-50.*),

however, fails to expressly disclose wherein the proportion of the thickness of the two layers is 5 to 95:95 to 5 (the total is 100).

However, it would have been obvious, through routine optimization and design choice to select the above proportions in order to provide a structure that meets the desired strength and performance.

Regarding claim 28, Matsui ('261) teaches a packaging label comprising the heat shrinkable film (*See col. 2, l. 9.*).

Regarding claim 29, Matsui ('261) teaches a container packaged with the heat shrinkable film (*See col. 2, l. 9.*).

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsui et al. (US 6,841,261) in view of Lind et al. (US 6,074,715) with evidence of with evidence of Shiraki et al. (US 4,386,125) and Teranishi et al. (6,184,289).

Matsui ('261) and Lind ('715) teach the structure discussed above, however, fail to expressly disclose wherein at least one of the outermost layers contains a rubber-modified polystyrene containing dispersed rubber particles having a volume average particle size of at most 2  $\mu\text{m}$ , in an amount of from 0.1 to 10 mass %.

However, it would have been obvious to one having ordinary skill in the art at the time Applicant's invention was made to use said high-impact styrene to reinforce the film without adversely affecting the transparency. Furthermore, it would it would have been obvious, through routine optimization that the quantities discussed above would not adversely affect the transparency (*See col. 1, ll. 6-27 and col. 2, ll. 43-50.*).

Furthermore, see as evidence wherein Teranishi ('289) teaches rubber particles with the above dimensions and concentration for structures having optimal strength and transparency (*See col. 8, ll. 20-55.*).

Therefore, it would have been obvious, through routine optimization and design choice to select a rubber-modified polystyrene containing dispersed rubber particles for one of the outermost layers (*See col. 1, ll. 6-27 and col. 2, ll. 43-50.*) in order to provide a structure with optimal strength and transparency.

#### **(10) Response to Argument**

At the beginning of Appellant's arguments under "Ground (A)" on p. 3 of Appellant' Brief filed 26 February 2008 and under "Ground (B)" on p. 10, Appellant states that "Shiraki et al." is cited as an art reference. Shiraki is cited as "evidence" as Appellant accurately states under the "Grounds of Rejection Heading" on p. 3.

Appellant argues (p. 6, para. 1 of Appellant's Brief filed 26 February 2008) that Matsui ('261) does not teach a soft phase and hard phase as claimed in independent claim #1.

However, it is noted that the structure clearly has a microphase separation structure with soft/hard phase regions wherein the styrene regions correspond to the hard phase and the non-styrene regions correspond to the soft phase (*See col. 8, l. 64 to col. 10, l. 51.*). This position was presented on p. 3, para. 2 of the Office action mailed 4 September 2007, however, Appellant has not precisely rebutted.

Appellant argues (p. 6, para. 2 of Appellant's Brief filed 26 February 2008) that styrene type polymers, as Matsui ('261) teaches, do not include syndiotactic styrene type polymers.

However, it is noted on p. 7, para. 3 of Appellant Brief that Appellant takes the opposite position that styrene type polymers include syndiotactic styrene type polymers. Thus, styrene type polymers clearly include syndiotactic styrene type polymers.

Appellant argues (p. 6, para. 3 to p. 7, para. 4 of Appellant's Brief filed 26 February 2008) that it would not be obvious to substitute Matsui's ('261) heat shrinkable multilayered film comprising styrene type polymers, which includes syndiotactic styrene, by Lind's ('715) heat shrinkable multilayered film comprising syndiotactic styrene because Lind does not disclose any particular advantage for using syndiotactic styrene for heat shrinkable multilayered films.

However, Lind ('715) clearly teaches the benefits as being a structure being strong with a narrow molecular weight distribution which provides for narrow crystalline and melting point ranges (*See col. 3, l. 44 to col. 4, l. 22 and col. 5, l. 58 to col. 6, l. 25.*) which are clearly important for the rigors that heat shrinkable multilayered films undergo during use. This position was presented on p. 4, paras. 3-4 of the Office action mailed 4 September 2007, however, Appellant has not precisely rebutted.

Appellant argues (p. 7, para. 4 of Appellant's Brief filed 26 February 2008) that if Matsui ('261) used syndiotactic polystyrene then the result would not be the same as Applicant claims.

However, it is noted that Applicant has not presented any analysis or evidence to support said conclusion. It seems as though Appellant is concluding that its own invention is incredible since Matsui's ('261) structure with syndiotactic polystyrene is the same as Appellants.

Appellant argues (p. 8, para. 1 of Appellant's Brief filed 26 February 2008) that dependent claim #9 is patentable because the prior art does not teach the melting point and melting energy.

However, it is noted that since the structures have the same composition they also have the same melting point and melting energy.

Appellant argues (p. 8, para. 2 of Appellant's Brief filed 26 February 2008) that dependent claim #10 is patentable because the prior art does not teach the crystallinity and crystallization temperature.

However, it is noted that since the structures have the same composition they also have the same crystallinity and crystallization temperature.

Appellant argues (p. 8, para. 3 of Appellant's Brief filed 26 February 2008) that dependent claim #11 is patentable because the prior art does not teach the internal haze.

However, it is noted that since the structures have the same composition they also have the same internal haze.

Appellant argues (p. 9, para. 1 of Appellant's Brief filed 26 February 2008) that dependent claim #12 is patentable because the prior art does not teach the relaxation stresses.

However, it is noted that since the structures have the same composition and heat shrinkage factor they also have the same relaxation stresses.

Appellant argues (p. 9, paras. 2-3 of Appellant's Brief filed 26 February 2008) that dependent claim #13 is patentable because the prior art does not teach the same lack of holes when placed on a hot plate.

However, the above film has such properties since the composition and shrinkage properties are the same.

Appellant concludes (p. 9, para. 4 of Appellant's Brief filed 26 February 2008) that dependent claim #14 is patentable.



However, Applicant has not precisely presented any analysis to support said conclusion.

Appellant argues (p. 10, paras. 1-2 of Appellant's Brief filed 26 February 2008) that dependent claim #15 is patentable because Matsui's ('261) does not disclose or suggest the meth(acrylate).

However, as discussed above the acrylates are similar and it would have been obvious to substitute one for the other due to their similar functionality.

Appellant concludes (p. 10, para. 4 to p. 11, para. 1 of Appellant's Brief filed 26 February 2008) that dependent claim #21 is patentable.

However, Appellant has not presented any precise analysis or evidence to support said conclusion.

For the above reasons, it is believed that the rejections should be sustained.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

Respectfully submitted,

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Examiner, Art Unit 1794

/Elizabeth M. Cole/  
Primary Examiner, Art Unit 1794

**Conferees:**

/Terrel Morris/  
Supervisory Patent Examiner  
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